Best Karachi Sindh G10 Mathematics Solved Past Paper

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Mathematics Solved Past Paper

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i) The median of 2,8,6,10,4,12 is:

A. 6
B. 7
C. 8
D. 9
Answer:
C. 8

ii) Sin30o=

A. √3/2
B. 1/√2
C. 1/√3
D. 1/2
Answer:
D. 1/2

iii) The multiplicative inverse of a-b is:

A. -a+b
B. a+b
C. 1/a-b
D. 1/a+b
Answer:
C. 1/a-b

iv) In 35,30,10,48,100,90 the range (R) is:

A. 10

B. 90

C. 100

D. 35

Answer:

B. 90

v) If $(x^3+4x^2-7x+3)\div(x-1)$ then the remainder is:

A. 0

B. 1

C. 2

D. -1

Answer:

B. 1

vi) If $x=2+\sqrt{5}$, then x^2 is:

A. $2\sqrt{5}$

B. $9+4\sqrt{5}$

C. 9

D. None of these

Answer:

B. $9+4\sqrt{5}$

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vii) The characteristics of log 226.7 is:

A. $\bar{2}$

B. $\bar{3}$

C. 2

D. 3

Answer:

C. 2

viii) The point of concurrency of the medians of a triangle is called:

A. Centroid

B. Circum-centre

C. in-centre

D. None of these

Answer:

A. Centroid

ix) $8^{1/3} \times 36^{1/2}$ =

A. 8

B. 36

C. 12

D. 24

Answer:

C. 12

x) The mean proportion of 14 and 56 is:

A. 14

B. 56

C. 28

D. 70

Answer:

C. 28

xi) (-5,-3) is in quadrant:

A. 1^{st}

B. 2^{nd}

C. 3rd

D. 4th

Answer:

C. 3rd

xii) The solution set of $3x^2$-10x=0

A. {10}

B. {10/3}

C. {0}

D. {0,10/3]

Answer:

D. {0,10/3]

xiii) If $\log_7 x=2$ then x=

A. 14

B. 128

C. 49

D. 64

Answer:

C. 49

xiv) If x+y=5 and x-y=5 then 4xy=:

A. 10

B. 25

C. 0

D. 5

Answer:

C. 0

xv) H.C.F of a^3+b^3 and a^2-ab+b^2 is:

A. a^2-ab+b^2

B. a+b

C. a-b

D. a^2+b^2

Answer:

A. a^2-ab+b^2

xvi) The cartesian product of sets A and B is written as:

A. A.B
B. A×B
C. AΔB
D. B×A
Answer:
B. A×B

xvii) If a:b=c:d the a:c=b:d this property of proportion is called:

A. Invertendo
B. Dividendo
C. Alternando
D. Componendo
Answer:
C. Alternando

xviii) The angle inscribed in a major arc is a/an:

A. Right angle
B. Obtuse angle
C. Acute angle
D. None of these
Answer:
C. Acute angle

xix) The sum of complementary angles is:

A. 180^o
B. 45^o
C. 90^o
D. 360^o
Answer:
C. 90^o

xx) If |A|=0 then matrix A is called:

A. Singular matrix
B. Non-singular matrix
C. Square matrix
D. None of these
Answer:
A. Singular matrix

Q.2 i) If A = {1,2,3,4,5,6,7,8} and B = {2,4,6,8,10} then prove that: $A \Delta B = (A \cup B) - (A \cap B)$

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Solution:-

Let $x = \frac{(57.26)}{\sqrt[3]{0.382}}$

Taking log on both sides.

$$\log x = \log\left[\frac{(57.26)}{\sqrt[3]{0.382}}\right]$$

$$\log x = \log 57.26 - \log\left(\sqrt[3]{0.382}\right)$$

$$\log x = \log 57.26 - \log(0.382)^{\frac{1}{3}}$$

$$\log x = \log 57.26 - \frac{1}{3}\log 0.382$$

$$\log x = 1.7578 - \frac{1}{3}[\,\bar{1}.5821]$$

$$\log x = 1.7578 - \frac{1}{3}[\,\bar{1}.5821 + \bar{2} + 2]$$

$$\log x = 1.7578 - \frac{1}{3}[\,\bar{3}.5821 + 2]$$

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Q.3 i) Find the value of x^3+y^3 when $x+y=-5$ and $xy=8$.

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Q.3 ii) Find the solution set of the following equation and also verify the answer: $\sqrt{25y-6}=4\sqrt{y+3}$

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Q.3 iii) For what value of a and b, $x^4+4x^3+10x^2+ax+b$ will be a perfect square?

Q.3 iii) For what value of a and b, $x^4+4x^3+10x^2+ax+b$ will be a perfect square?

Solutions

Q.4 i) Solve triangle ACB when $m\angle C=90^\circ$, c= 8cm, b = $4\sqrt{3}$ cm

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Q.4 ii) Eliminate ‘x’ from the following equations: x+1/x=2p, x-1/x=2q+1

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Q.5 i) If a transversal intersects two coplaner lines such that the pair of alternate angles are congruent, then the lines are parallel. Prove it.

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Q.5 iii) Find the factors with help of Remainder Theorem : $x^3 - 4x^2 + 5x - 2$.

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Q.6 i) Find the variance of the following sets observations : X = 11,13, 25,15,12,18,17, 23, 20,16

Q.6 iii) The measure of a central of a minor arc of a circle is double that of the inscribed angle of the corresponding major arc. Prove it.

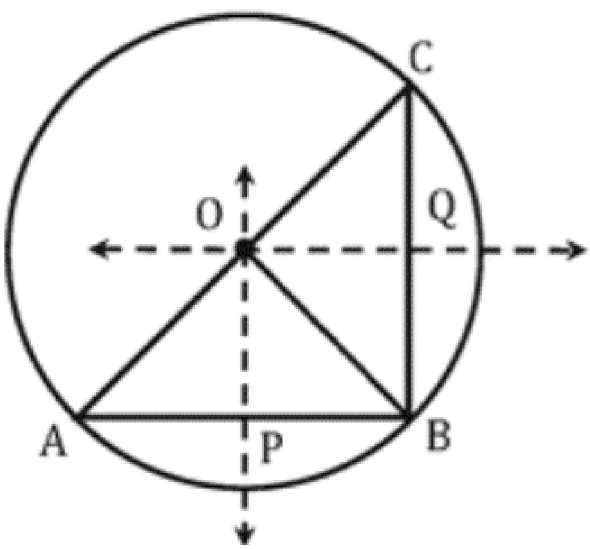
Proof:

Statement	Reasons
As m∠1=m∠3 ...(i) and m∠2=m∠4 ...(ii) Now, m∠5=m∠1+m∠3 ...(ii) Similarly, m∠5=m∠2+m∠4 ...(iv) Again, m∠5=m∠3+m∠3=2m∠3 ...(v) and m∠6=m∠4+m∠4=2m∠4 ...(vi) Then, from figure, m∠5+m∠6=2m∠3+2m∠4 m∠AOC=2(m∠3+m∠4)=2m∠ABC	angles opposite to equal sides in OAB angles opposite to equal sides in OBC External angles is the sum of external opposite angles using (i) & (iii) adding (v) & (vi)

⇒ Hence, The measure of a central angle of a minor arc of a circle is double that inscribed angle of the corresponding major arc

Q.9 b) One and only one circle can pass through three non-collinear points.

Solution:



Given: A,B,C are three non-collinear points.

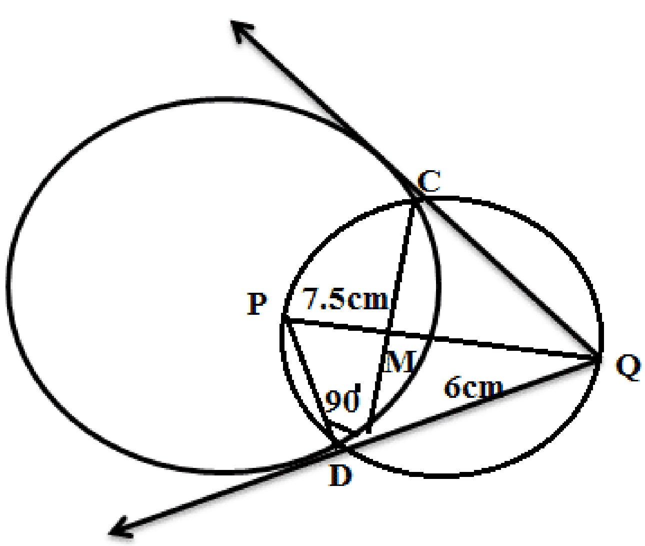
To prove that: One and only one circle can pass through A,B,C.

Construction: Draw $\overline{OP}$, $\overline{QO}$ right bisectors of $\overline{AB}$ and $\overline{BC}$ intersecting them at P and Q respectively and meeting one another at O.

Proof:

Statements	Reasons
(1) $\overleftrightarrow{OP}$ is the locus of points equidistant from A and B i.e. $\overline{AO} \cong \overline{BO}$	(1) By the theorem 16 (Maths Part 1) ($\overline{OP} \perp \overline{AB}$)
(2) Similarly $\overline{BO} \cong \overline{CO}$	(2) $\overline{OQ} \perp \overline{BC}$ (Theorem 16 Maths Part 1)
(3) $\therefore$ $\overline{AO} \cong \overline{BO} \cong \overline{CO}$	(3) Transitive property of equations.
(4) $\therefore$ Any Circle with centre O, and radius equal to $m\overline{OA}$ will pass through B and C.	(4) $\therefore$ $m\overline{AO} = m\overline{BO} = m\overline{CO}$
(5) And above one is the only circle passing though A,B,C.	(5) $\therefore$ $\overleftrightarrow{OP}$ and $\overleftrightarrow{OQ}$ intersect in only one point.

Q.11) The distance between two points P and Q is 7.5cm. with the centre, P draw a circle of radius 4.5cm. From the point Q, draw a tangent to the circle. Measure the segment of the tangent. Also, **write the steps of construction.**



Steps of construction:-

(1) Taking two points P and Q at a distance of 7.5 cm from each other.

(2) Join the points P and Q to draw $\overline{PQ}$ = 7.5 cm.

(3) Taking P as centre and radius = 4.5cm , draw a circle.

(4) Bisect the line segment $\overline{PQ}$ at M.

(5) Taking M as the centre and radius = m $\overline{PM}$ or m $\overline{QM}$, draw a circle intersecting the given circle at points C and D.

(6) Join Q to C and extend it

(7) Join Q to D and extend it

Hence $\overline{QC}$ *and* $\overline{QD}$ are the required tangents to the given circle

The length of the segments of tangents is 6.0 cm .